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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,802	03/07/2005	Yasuhiro Omori	JFE-05-1039	7406
35811 7590 12/06/2007 IP GROUP OF DLA PIPER US LLP ONE LIBERTY PLACE 1650 MARKET ST, SUITE 4900 PHILADELPHIA, PA 19103			EXAMINER YANG, JIE	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 12/06/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,802	Applicant(s) OMORI ET AL.	
	Examiner Jie Yang	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This is to acknowledge of the receipt of "applicant argument/remarks" filed on 10/18/2007. Abstract and specification have been amended. Claims 1 and 2 have been amended from original claims, Claims 1-3 are pending in application.

Status of the Precious Rejection

Objection for abstract and specification have been withdrawn in view of the applicant's amendment filed on 10/18/2007. The previous rejection of claims 1-3 under 35 U.S.C. 112, 2nd paragraph is withdrawn in view of the amendments filed on 10/18/2007. The previous rejection of claims 1-3 have been withdrawn in view of the arguments filed on 09/27/2007. However, upon further consideration, a new ground(s) of rejection is made (see below).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuzaki et al (JP 09111401, thereafter 'JP401) alone or in view of Isokawa et al (US 5,279,688, thereafter '688) .

Regard to claim 1, 'JP401 teaches a steel for machine structure use having high torsional strength after induction hardening and tempering and excellent in machinability and quenching crack resistance (Abstract of 'JP401). The composition range of steel claimed in 'JP401 significantly overlaps the range of alloy recited in the instant claims.

Element	From instant Claims (in wt%)	'JP401 (in wt%)	Overlapping range (in wt%)
C	0.35-0.50	0.35-0.60	0.38-0.45
Si	>0.05-0.15	0.05 or less	--
Mn	0.20-1.1	0.67-1.7	0.67-1.1
P	0.02 or less	0.02 or less	0.02 or less
S	0.005-0.035	0.005-0.035	0.005-0.035
Cr	0.1-0.2	0.15 or less	0.1-0.15
Mo	0.05-0.5	0.05-0.5	0.05-0.5
Ti	0.01-0.05	0.01-0.05	0.01-0.05
Al	0.01-0.05	0.01-0.05	0.01-0.05
N	0.01 or less	0.01 or less	0.01 or less
B	0.0005-0.0050	0.0005-0.0050	0.0005-0.0050
Cu	0.06-0.25	1.0 or less	0.06-0.25
Ni	0.05-0.2	3.5 or less	0.05-0.2
V	0.01-0.3 (Cl.2)	0.01-0.30	0.01-0.30
Nb	0.005-0.05 (Cl.2)	0.005-0.05	0.005-0.05
Fe	Balance	Balance	Balance

But 'JP401 does not explicitly teaches "more than 0.05% up to 0.15% of Si". However 'JP401's composition range is just outside of range that claimed in the instant claim, the 0.05wt.% Si of 'JP401 would be close to the claimed 0.0501 wt.% Si. Therefore, the claimed steel composition would be obvious in view of 'JP401. See 2144.05.

Alternatively, '688 teaches a steel shaft material having desirable cuttability and induction hardenability with a composition range significantly overlaps the range of alloy recited in the instant claim (Abstract of '688 and refer to the following composition comparing table). '688 teaches Si content is in the range of 0.15 or less, which overlaps the range or more than 0.05 to 0.15% Si as claimed in the instant claim. It is a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skilled in the art to select the claimed Si compositions disclosed by '688 in the alloy of 'JP401, because '688 teaches such a alloy has desirable cuttability and induction hardenability (Abstract of '688).

Element	From instant Claims (in wt%)	'688 (in wt%)	Overlapping range (in wt%)
C	0.35-0.50	0.38-0.45	0.38-0.45
Si	>0.05 to 0.15	0.15 or less	>0.05 to 0.15
Mn	0.20-1.1	0.3-1.0	0.3-1.0
P	0.02 or less	0.013-0.022	0.013-0.02
S	0.005-0.035	0.005-0.3	0.005-0.035
Cr	0.1-0.2	0.3 or less	0.1-0.2
Mo	0.05-0.5	0.10 or less	0.05-0.10
Ti	0.01-0.05	0.01-0.05	0.01-0.05
Al	0.01-0.05	0.01-0.06	0.01-0.05
N	0.01 or less	0.01 or less	0.01 or less
B	0.0005-0.0050	0.0005-0.0030	0.0005-0.0030
Cu	0.06-0.25	0.3 or less	0.06-0.25
Ni	0.05-0.2	0.25 or less	0.05-0.2
V	0.01-0.3 (Cl.2)	--	--
Nb	0.005-0.05 (Cl.2)	--	--
Fe	Balance	Balance	Balance

'JP401' further teaches 7-30% bainite phase in the alloy (Table 2 and 4 of 'JP401), which overlaps more than 5 to 30% of a bainite phase on an area percent basis as recited in the instant claim.

Regarding the equation (1) in claim 1, 'JP401 alone or in view of '688 overlaps the alloy composition as claimed in the instant claim. It is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D.357, 553 O.G.177; 57 USPQ 117, Taklatwalla v. Marburg. 620 O.G.685, 1949 C.D.77, and In re Pilling, 403 O.G.513, 44 F(2) 878, 1931 C.D.75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. In re Austin, et al., 149 USPQ 685, 688. 'JP401 would have the similar microstructure (Table 2 of 'JP401) as disclosed in the instant invention (Table 2 of instant application). Because 'JP401 alone or in view of '688 has the similar alloy composition and the similar microstructure as recited in the instant invention, the specific properties, such as formability of rotary-forming, quenching crack resistance, and torsional

properties as recited in the preamble of claim 1 would inherently be present in 'JP401 alone or in view of '688 (Refer to MPEP 2112.01 [03] I).

Regarding claim 2, 'JP401 teaches V:0.01-0.3% and Nb: 0.005-0.050% (Abstract of 'JP401).

Regarding claim 3, as discussed in the rejection for claim 1, 'JP401 teaches hardened layer performed by induction hardening and tempering process to treat the alloy and 'JP401 also teaches drive shaft application for mechanical structure alloy ('JP401 translation, [002],[003] Description of the prior art).

Response to Arguments

In the remark, the Applicant argues that 'JP401 does not teach Si content more than 0.05 to 0.15% and '688 does not teach 5% to 30% bainite phase in the alloy according applicant's amendment filed on 10/18/2007. In response, a new ground rejection under 35 U.S.C. 103(a) as being unpatentable over Matsuzaki et al (JP 09111401, thereafter 'JP401) alone or in view of Isokawa et al (US 5,279,688, thereafter '688) was discussed as above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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